



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,508	09/26/2003	Takeshi Aso	040302-0349	8634
22428	7590	12/29/2006	EXAMINER	
FOLEY AND LARDNER LLP			MERCADO, JULIAN A	
SUITE 500			ART UNIT	PAPER NUMBER
3000 K STREET NW			1745	
WASHINGTON, DC 20007				
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE		DELIVERY MODE	
3 MONTHS	12/29/2006		PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/670,508	ASO, TAKESHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Julian Mercado	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 October 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

*Remarks*

This Office action is responsive to applicant's amendment filed on October 13, 2006.

Claims 1-10 are pending, of which claims 8-10 are newly submitted.

*Specification*

The disclosure is objected to because of the following informalities:

1. On page 8 at lines 4-8, revision of the sentence therein is required with particular attention to the term "no an" in line 5.
2. On page 8 at line 14, it is suggested to change "stet" to --set--.

Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

The rejection of claims 6 and 7 under 35 U.S.C. 112, second paragraph has been withdrawn.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "the electric power converter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the rise-up condition" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the detected power level of the fuel cell stack" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102 and 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-10 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ding et al. (U.S. Pat. 6,580,977 B2)

The rejection is maintained for the detailed reasons already of record. Applicant's arguments have been fully considered and are persuasive-in-part for the reasons to be discussed herein. In order to give applicant the opportunity of a reply, this Office action is made NON-FINAL.

For similar reasons as set forth for claims 2-5, as new claims 8-10 recite limitations drawn to use of the controller insofar as the claims recite that the "controller controls the fuel cell stack....", these limitations have not been given patentable weight as the functional limitations fail to further limit the claimed system by merely reciting limitations of intended use.

Applicant has two salient lines of argument. The first one is drawn to an alleged mischaracterization of Ding et al. insofar as "the word 'SOCb' is defined not as a 'power level'

of the battery but rather it is defined as the ‘charge level’ of the battery.” (remarks on page 6) To this extent, the examiner concedes that the term “SOC” equates to the battery’s state-of-charge, or SOC in short. While a battery’s charge is indicative of its capacity, Ding et al. use the term SOC as a reference point for deciding on the relative power outputs between the fuel cell and the battery. The patentees specifically disclose that both the fuel cell and battery operate in tandem, as “[i]nverters are needed to give flexibility to have the FCS 44 and battery 54 give *required power* as needed.” (emphasis added) See col. 5 lines 42-43. Also refer to col. 5 lines 13-18 as follows:

When a power requirement from the load (motor 36) is low, the FCS 44 provides current or voltage to charge the battery 54 efficiently when the battery 54 state-of-charge (SOC) is low. When the power requirement is high, both the battery 54 and FCS 44 together provide power to meet the load need.

Claims 1 and 6, drawn to the independent claims for the system, have been amended to recite a two control modes... including: a first control mode... and a second control mode. The first control mode requires the voltage of the battery to lie at a value equal to or greater than an open voltage of the fuel cell stack. The second control mode requires the voltage of the supplied load from the secondary battery to be at a level less than a detected electric power level. It is asserted that Ding et al. provides, inherently, the voltage levels from the secondary battery in accordance with these two levels and hence via two control modes. The first level is when the fuel cell is started “with help from the battery”, and the second level is when the fuel cell is started “without help from the battery”. Thus, the power level (and hence the voltage) of the battery is asserted as greater, inherently, than that of the fuel cell, since the battery *provides power* to the fuel cell. See col. 6 lines 35-49. Regarding the second level, the battery power is at zero, i.e. “without any

help from the battery...”, thus, at this power level the load from the secondary battery is less than a detected electric power level, which is entirely met by the fuel cell. See col. 6 line 53.

Applicant’s second line of argument is that the claimed invention is during the start-up of the fuel cell. It is asserted that the cited portion relied upon in this Office action is during the start-up of the fuel cell.

As to statements made drawn to the third point (P3) falling well short of the specific features recited in the present claims, this line argument is unclear to the examiner as the prior Office action did not rely on a third point (P3) as a basis for rejection. If applicant should want a specific reply by the examiner, clarification on this point is requested.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 1745

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
jam



DAH-WEIYUAN  
PRIMARY EXAMINER